

THERAPEUTICS

UNDER THE CHARGE OF

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Salvarsannatrium.—GUTMANN (*Berl. klin. Wchnschr.*, 1915, lii, 400) writes concerning salvarsannatrium, which is a derivative of old salvarsan, so prepared that when dissolved in distilled water, its solution have the same chemical composition as solutions of old salvarsan prepared in the ordinary way by neutralization with sodium hydrate. The chief advantage of salvarsannatrium is the great simplicity of the technique of preparing the solution for injection, the new preparation being as easily soluble in water as is neosalvarsan. It is claimed, therefore, that salvarsannatrium combines the advantages of simple technique of administration of neosalvarsan while retaining the full therapeutic effect of old salvarsan. Salvarsannatrium is a yellowish powder which oxidizes readily on exposure to the air. The oxidized product is markedly toxic and, for this reason, solutions for injection must be made immediately before using. Gutmann recommends the method of Dreyfus who advises dissolving the dose in 20 to 30 c.c. of doubly distilled sterile water and injecting this intravenously by the syringe method. Gutmann advises a dose of 0.6 gm. for men and 0.45 gm. for women. During a period of six or seven weeks' treatment from 4 to 6 gm. can be given without untoward symptoms. A rise of temperature usually follows the intravenous injection. This promptly subsides and cannot be avoided. Skin eruptions of various types have also occasionally followed salvarsannatrium injections but are of short duration. No serious untoward symptoms have followed the use of salvarsannatrium in Gutmann's experience.

Immediate Results of Splenectomy in Pernicious Anemia.—LEE, VINCENT, and ROBERTSON (*Jour. Amer. Med. Assn.*, 1915, lxx, 216) report a series of 5 cases of pernicious anemia treated by splenectomy. The immediate results in this series were a prompt postoperative recovery and a definite remission of the disease in every case. The remissions were much more marked than are usually seen in pernicious anemia. In 4 of the 5 cases the red blood cells rose to from 4,000,000 to 5,000,000. However, in spite of the marked improvement, the blood picture retained the characteristics of pernicious anemia with the exception of a change in the color index from high to normal or low. Furthermore, in 3 of the 5 cases, evidence of increased blood destruction was present several months after splenectomy, as shown by the urobilin estimation. The authors cannot state that the improvement following splenectomy will last longer than the remissions which come spontaneously, and which may persist over a period of years. The only conclusions which the authors are willing to draw

from the cases reported by them combined with the reports of other writers are: (1) Splenectomy is not a very serious operation in pernicious anemia, and it offers a definite means of inducing a remission. (2) The remission thus brought about is more marked in the majority of the cases than any other known therapeutic procedure.

Recent Experiences in Vaccine Treatment.—MADDEN (*Lancet*, London, 1915, clxxxix, 267) prefers to use an autogenous vaccine, as a more potent and direct vaccine is made available. The strength of vaccine is generally 250 million to 1 c.c., with an initial dose of 50 million. The interval between the doses depend upon the case itself and the reaction produced, but they are never less than five days. The general effect of an appropriate vaccine, according to Madden, is to produce a definite reaction with fever and malaise and usually also a distinct but temporary exacerbation of the symptoms of the condition under treatment. When this degree of reaction occurs the injection should be carried steadily on in increasing strengths at proper intervals. The maximum curative effect is generally gained in from 8 to 12 injections. Madden has employed vaccines systematically in the treatment of boils and furunculosis generally. So universally successful has this method been in his hands that he never employs any other. A start is made with 100 million followed by 500 million five days later, and at a similar interval by 1000 million. Generally this series of three injections suffices to cure in the ordinary case; but in more intractable cases a further series working rapidly up to 5000 million, will almost certainly be sufficient. He has also had some success in cases of pyorrhea alveolaris with an autogenous vaccine, but he advises that vigorous local treatment must be carried out at the same time. In acne the results have been on the whole very disappointing. Comparatively recent and uncomplicated pustular acne does, however, react very promptly in almost the same degree as an invertebrate furunculosis; but in old cases, in which there is much scarring about the sebaceous follicles, results are likely to be disappointing. A further very important use of vaccines, Madden says, is in boils, carbuncles, and cellulitis occurring in diabetes. Here particularly one must make a practice of giving large and repeated doses of vaccines, alternating in extreme cases with anti-streptococcal serums. Septic infection from operation wound or injury may also be controlled by vaccines; but it is very necessary to make sure of the causal organism before beginning a series of injections. Madden points out that in all vaccine treatment it must be remembered that an incision into the affected part acts like a vaccine, as it produces a phagocytosis which will itself have a vaccinal effect; quite apart from the evacuation of pus and septic serum and the relief of tension by the incision. Care must therefore be taken not to give a strong dose of a vaccine at the same time as the incision or too violent a reaction may occur. Further, vaccine must not be given during the stage of depression or of anaphylaxis resulting from the vaccinal effect of the incision. Madden states that he knows of no better treatment for infection of the urinary tract due to colon bacilli than that by vaccines, although treatment has to be long continued and relapse may occur. With respect to vaccine treatment of gonorrhea and its complications he has found that results have been very disappointing when the gonococcus

infecting organism. Certain cases of mixed infection respond to the is the principal proper vaccines. Pneumococcic vaccine, either as stock for acute lobar pneumonia or as an autogenous vaccine in cases of old chronic cough, especially if consequent upon a former inflammation of the lungs, is most useful but should not be depended upon entirely.

The Use of Digitalis in Various Forms of Cardiac Arrhythmia.—CHRISTIAN (*Bost. Med. and Surg. Jour.*, 1915, clxxiii, 306) says that an important indication of the beneficial action of digitalis is the decrease in the pulse deficit, *i. e.*, the difference between the apex beat and the radial pulse. In auricular fibrillation the counting of the radial pulse may be very misleading, it often being within normal limits when actually the heart is beating very rapidly. Digitalis impedes conduction in the bundle of His, and the result is that fewer auricular contractions send impulses through to originate ventricular contractions and consequently the ventricle beats more slowly. With slower contraction of the ventricle, there is more time for the ventricle to fill and more time for the muscle to recover from fatigue. Digitalis also probably exerts an action on the myocardium, causing more forcible contractions, and improves coronary circulation. In some patients with auricular fibrillation in which edema is marked, a much better diuresis is obtained by combining with the digitalis a diuretic drug, such as theocin. In another form of arrhythmia, namely, auricular flutter, digitalis usually produces a striking effect. The heart in such cases may slow down directly into a normal rhythm with great improvement in the patient's condition, or the digitalis may throw the auricle into fibrillation and when digitalis is stopped the normal rhythm is restored. In pulsus alternans digitalis frequently produces good results. In the rapid, regular, decompensated heart digitalis slows the rate by increasing vagus inhibition and by increasing conduction time between auricle and ventricle, and it strengthens heart action by some direct action on the myocardium and coronary circulation. This type of case often seems definitely resistant to digitalis and the patient may take large amounts before any effect can be detected. It is always well to remember in such cases to watch the patient carefully for sometimes the digitalis action, which has been long delayed, develops with great rapidity into marked activity so that the patient, who shortly before has shown no digitalis effect, quickly develops toxic symptoms. In paroxysmal tachycardia there is little evidence that digitalis produces any good effect. In sinus arrhythmia and in compensated hearts with ectopic beats or extrasystoles digitalis is not indicated. In cases of heart block not of digitalis origin, digitalis should be tried if the patient is decompensated. Results are sometimes good; at other times it would seem that the patient is made worse. Christian advocates the selection of one good digitalis preparation for administration by mouth and one for intravenous use. By continued use of the same preparations it is easier to estimate in a given case whether digitalis is effective or not. He deprecates the great number of "improved" preparations of digitalis as too confusing for proper judgment of effects. He prefers to use powdered digitalis or a freshly made infusion for oral administration and liquid digipuratum for intravenous use. Occasionally strophanthin intravenously is indicated but due regard must be paid to the

necessary caution against strophanthin in a patient who has been taking digitalis by mouth. As to dosage Christian says that relatively large doses should be used in periods of decomposition. With compensation restored very small doses continued over long periods certainly seem to be of great help in maintaining compensation.

The Inactivation of Pepsin by Sodium Chloride; Its Clinical Significance.—HAMBURGER (*Arch. Int. Med.*, 1915, xvi, 356) describes experiments that constantly showed that the neutralization of gastric juice results in complete inhibition of peptic action even after the addition of hydrochloric acid in excess, and that the inhibition of pepsin is due to sodium chloride acting in a neutral medium. The clinical application of these findings would lie in the ability to adapt measures whereby the stomach acid could be completely neutralized and the neutral reaction continuously maintained, and also that the newly formed and secreted acid could be immediately and continuously bound with alkali as soon as it was formed. If this could be accomplished, the pepsin set free by neutralization, as well as the newly secreted pepsin, would be bound by inhibiting sodium chloride and permanently inactivated. As a result, peptic activity would be destroyed for a period of time equal to the continuance of the neutral reaction, a condition similar to achylia gastrica. Such a temporary achylia would be desirable: (1) as a prophylactic measure, to prevent the formation of gastric or duodenal ulcer; (2) to facilitate the healing of ulcer by removing the factor which, next to mechanical trauma, is probably of greatest importance in the continuance and progression of chronic ulcer. Therefore in simple hyperacidity, in hypersecretion from whatever cause, in motor insufficiency with continuous secretion, in pylorospasm with hyperacidity and hypersecretion, in chronic ulcer, in gastro-enterostomy to prevent the formation of jejunal ulcer. Neutralization with peptic inactivation might be desired. The author states that by the use and combination of certain alkalies with certain foods and methods of feeding, continuous and complete neutralization of the stomach contents can be maintained.

The Treatment of Heart Disease.—SHATTUCK (*Bost. Med. and Surg. Jour.*, 1915, clxxiii, 316) presents the general principles of the treatment and management of patients suffering from cardiac disease with especial reference to the treatment of angina. He emphasizes that the all-important therapy of angina, whether grave or relatively benign, is the regulation of the mode of life. Every effort should be made to avoid bringing on pain. Shattuck points out that the details of medicinal treatment of true angina depend somewhat on its origin—whether this be infectious or non-infectious, and if infectious whether of syphilitic or other origin. Medicinal treatment is usually of minor, though still of real importance. Strychnia is to be avoided as tending to heighten reflex excitability. Digitalis is indicated only so far as myocardial failure is suggested by symptoms other than pain. Small doses of potassium iodid can seldom be harmful and seem to be of value even in non-syphilitic cases. The action of glonoin is so transitory that its value between attacks is doubtful. If it be desirable, as Shattuck believes to be rarely the case, to try to secure constant reduction of blood pressure, sodium nitrite or erythrol may be used.